July 29, 1924. 1,502,842

J. C. BEISWENGER

CUT-OUT FOR EXHAUST PIPES

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Fig- 1

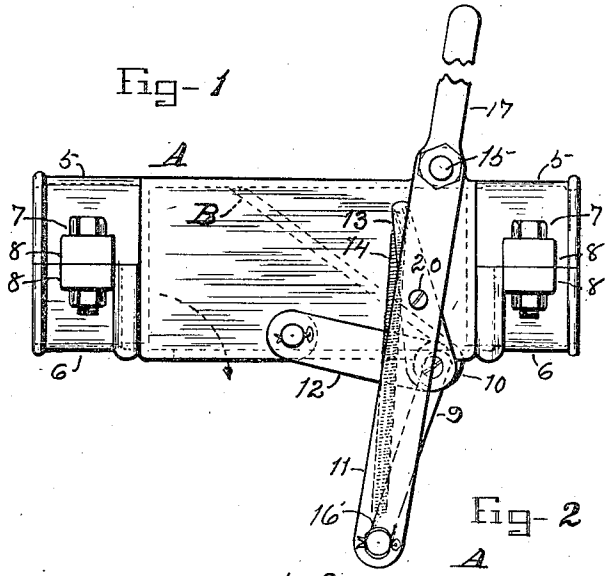


Fig- 2

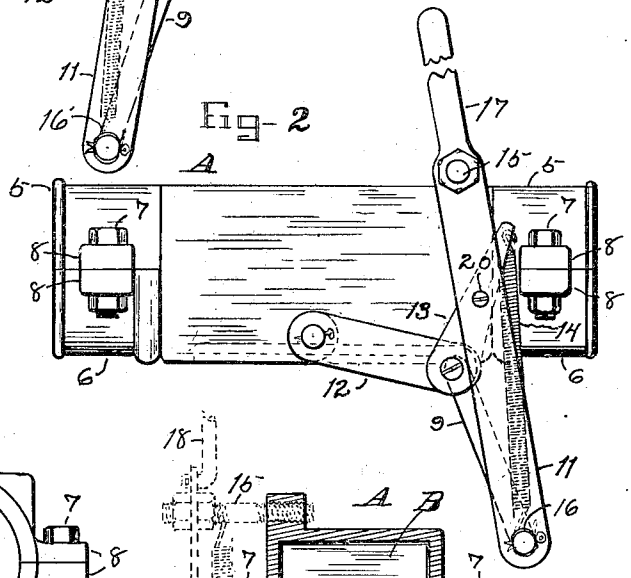


Fig- 3

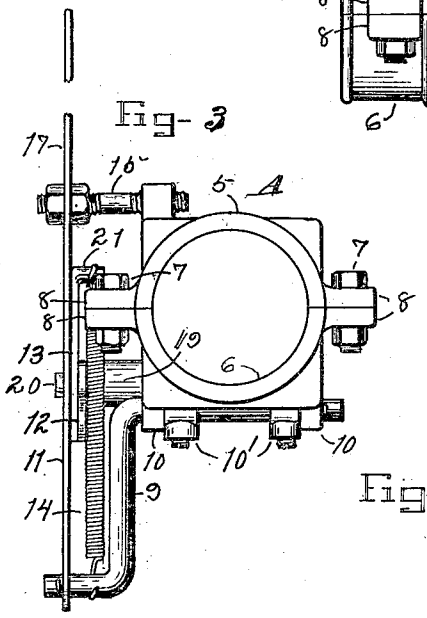
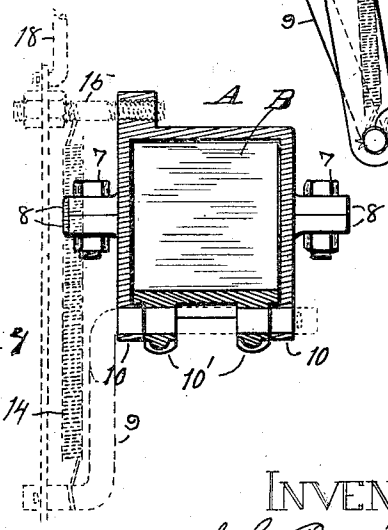


Fig- 4



WITNESSES

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Fig- 5

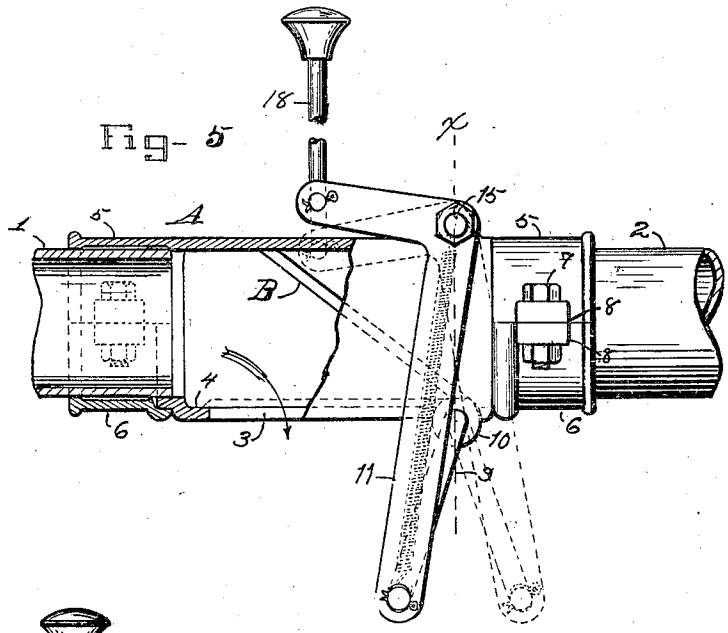


Fig- 6

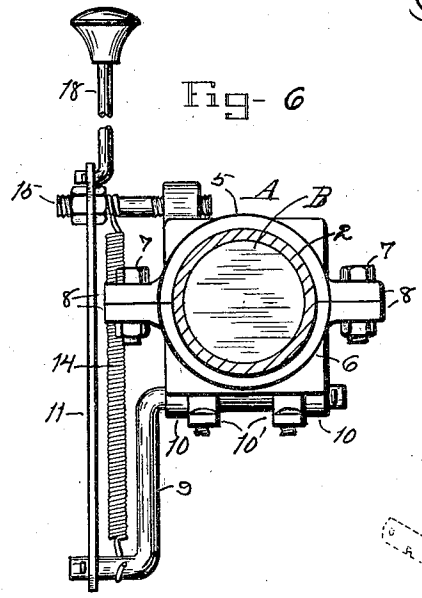
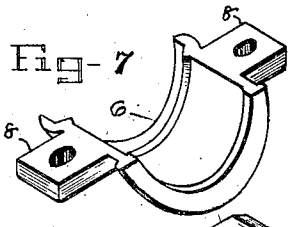


Fig- 7



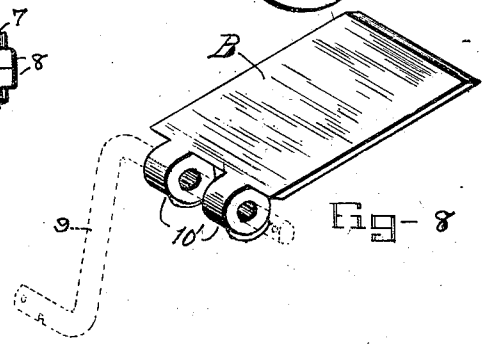


Fig- 8

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UNITED STATES PATENT OFFICE.

JACOB C. BEISWENGER, OF JACKSON, MICHIGAN.

CUT-OUT FOR EXHAUST PIPES.

Application filed January 3, 1921. Serial No. 434,855.

To all whom it may concern:

Be it known that I, JACOB C. BEISWENGER, a citizen of the United States, residing at Jackson, in the county of Jackson and State of Michigan, have invented certain new and useful Improvements in Cut-Outs for Exhaust Pipes, of which the following description, with appended claim, taken in connection with the accompanying drawings, forms a specification.

This invention more particularly has reference to cut-outs for internal combustion engines, and its object is to generally improve this class of mechanism.

As generally constructed, cut-outs do not give a maximum of efficiency for the purpose designed owing to the meagre dimensions of the passage through the exhaust pipe where the cut-out valve is placed, and to the mode of arranging said valve to divert the gases through said passage.

In making steep grades, pulling heavy loads or running at high speed, the muffling of an engine results in a labored effort on its part, and also with ordinary usage an engine operating with a muffler becomes more or less clogged with carbon deposits which affect the free and smooth operation of the engine in various ways, and precludes the use of fuel otherwise available.

My invention has for its object to provide a cut-out capable of full efficiency and so constructed that the same may be installed in the exhaust pipe of an engine by an artisan of ordinary ability; whereby its mechanism will be contained within a unit of itself; and whereby said cut-out will be positive in operation.

To these ends the invention consists of the details of construction hereinafter more fully described and claimed, and illustrated in the accompanying drawings, in which Figure 1 is an embodiment of my improved cut-out in longitudinal side elevation looking toward its operative mechanism with the latter positioned to effect a complete cut-out of the gases from an engine.

Fig. 2 is a view similar to Fig. 1 with the operative mechanism positioned to close the cut-out opening.

Fig. 3 is an end view of Fig. 1 looking from the right.

Fig. 4 is a vertical cross section of Fig. 5.

Fig. 5 is a broken side view of my improved cut-out installed in an exhaust pipe of an internal combustion engine, and shows the operative mechanism in a position to effectively discharge its burned products.

Fig. 6 is an end view of Fig. 5 looking from the right.

Fig. 7 is a detail perspective view of a clip or bracket for securing the cut-out union to an exhaust pipe.

Fig. 8 is a perspective detail view of the cut-out valve.

In the drawings, like marks of reference refer to corresponding or equivalent parts in the different views, and arrows indicate the flow of burned gases from an engine into and through the union and cut-out. A, represents an open-ended box or union within which an oscillatory cut-out valve B is fitted, the former adapted to be installed between the ingress and egress extremities of an exhaust pipe, as 1 and 2, respectively.

Preferably the union is rectangular between its extremities, as shown in Figs. 3, 4 and 6, and on one side, designated as its bottom, it is made with a longitudinal rectangular opening 3, the same being formed by an external extending rim 4 within a depression of said union. The union at its ends is provided with longitudinally extending semi-circular upper portions 5 adapted to lie on the separated ends of an exhaust pipe when fitted thereto, as shown in Fig. 5.

In fitting my cut-out to engines already installed in motor vehicles, the exhaust pipe is severed at a point convenient for the operation of the cut-out, the severed pipe separated, (or if necessary a portion cut away), the union A inserted between the severed ends, thence slightly moved toward the engine to partially inclose said pipe, as shown in Fig. 5, the egress portion 2 of said pipe being moved to also be enclosed by said union in a like manner, after which semi-circular retaining clips 6 are placed to enclose said pipes within the spaces affected by the extensions 5, and clamping bolts 7 fitted through side extending lugs 8 of both said clips and extensions to firmly secure the parts.

The valve B is formed to nicely operate within the union aforesaid, and when in a lowered position over the cut-out aperture 3, lies below a line passing through the bottom of the exhaust pipe on the ledge 4 of said union, so that the passage through the pipe and union will be free from obstruction, said valve when lifted or elevated, as shown

in Figs. 1, 4, 5 and 6, completely closing the union and preventing the passage of gases from the engine to the muffler and directing the same through the opening 3 in the bottom of said union. The valve B is operated by a crank 9, the axle of which is suspended in lugs 10 on the sides of the union at the end opposite to the ingress of the exhaust pipe and at the extremity of the opening 3, at which place depending lugs 10' of said valve are fixed to said axle as shown.

In the embodiment shown in Figs. 1, 2 and 3, the valve B is operated by a lever 11, an arm 12, a member 13 and a coil spring 14. The lever 11 swings on a side extension 15 of the union directly above and on the same side as that on which the crank 9 operates, said lever extending beyond the axis of said crank, and near its lower extremity being formed with a slot 16 through which the offset end of said crank extends, the slot affording the free operating of the parts at the point to counteract the offset spaced axes of said crank and lever.

The free end of the lever 17 or an attached mechanism, as 18, is adapted to extend through the floor of a vehicle, affording a means whereby the mechanism and the valve B may be operated. That the valve B may be readily and automatically secured in either of its limited positions, the arm 12 is pivoted to an offset 19, see Fig. 3 on the side of the union B to one side of the crank axle and somewhat above the latter, and the outer end of the arm is hinged to the lower end of the member 13, the latter being pivoted between its extremities to the lever 11 on a stud 20, the parts being joined in such manner that an elbow effected by the parts 12 and 13 coincides with the crank axis when the lever 11 moves beyond said axis.

The member 13 at its upper end is formed with an offset 21, and extending from this offset to the offset end of the crank 9 a contracting spring 14 is strung.

In shifting the lever 11 to operate the valve B to either of its operative limited positions, a slight upward and a subsequent downward movement of the hinged connection of the arm 12 and member 13 is effected, in which movement the spring 14 is made taut when the hinged parts are aligned with the pivot 20, a deviation of said alignment permitting said spring to contract and automatically facilitate the operation of the parts to the limit of their movement, and also retain the parts until acted upon.

In the embodiment shown in Figs. 4, 5 and 6, the parts 12 and 13 as pertaining to Figs. 1, 2 and 3 are eliminated and the coil spring 14 is strung from the extension 15 to the offset end of the crank 9 to effect the holding of the valve to either of its limited movements.

I have herein shown and described preferred embodiments of my invention, and am aware that certain modifications might be resorted to without departing from or sacrificing any of its advantages, and I reserve the right to construct my improved cut-out for exhaust pipes in any manner compatible, within its scope and intent.

Having, therefore, described my invention, what I claim as new and desire to secure by Letters Patent, is:—

The combination of an open-ended union having a side opening and an oscillatory valve adapted to control said opening and the passage through said union, of a crank journalled to said union and adapted to oscillate said valve, a lever pivoted to said union on the same side with said crank and opposite thereto, said lever extending by said crank and formed with a slot at its free end, said crank at its free end extending through said slot, an arm pivoted to said union above the journal of said crank and to one side thereof, a member pivoted intermediate its length to said lever and also hinged at one end to the free end of said arm to form an elbow in which its joint will coincide with the axis of said crank when said lever is moved, so that said lever crank and member are aligned, and a spring connected at its ends to both the free ends of said member and said crank, substantially as and for the purpose set forth.

JACOB C. BEISWENGER.

Witnesses:

JAMES A. REYNOLDS,

E. M. CROSS.